

INCH-POUND

MIL-DTL-13241B
15 October 2003
SUPERSEDING
MIL-W-13241A(EL)
19 May 1965

DETAIL SPECIFICATION

WIRE, ELECTRICAL; ANTENNA,
(WIRE WS-12()/U AND WIRE WS-13()/U)

Inactive for new design after 16 June 1997

This specification is approved for use by all Departments
and Agencies of the Department of Defense.

1. SCOPE

1.1 Scope. This specification covers bare, copper-clad steel, stranded wire having 40 percent electrical conductivity.

1.2 Classification. The wire offered under this specification is according to table I.

TABLE I. Wire classification.

Type designation	Number strands	AWG. size	Nominal o.d. (inch)	Nominal wt./1000 ft.
WS-12()/U	7	12	0.242	128.1 lbs.
WS-13()/U	3	12	0.174	54.8 lbs.

2. APPLICABLE DOCUMENTS

2.1 General. The documents listed in this section are specified in sections 3, 4, and 5 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements documents cited in sections 3, 4 and 5 of this specification, whether or not they are listed.

2.2 Government documents.

Comments, suggestions, or questions on this document should be addressed to Defense Logistics Agency, Defense Supply Center, Columbus (DSCC-VAI), P.O. Box 3990, Columbus, OH 43216-5000 or emailed to Wire&Cable@dsccl.dla.mil. Since contact information can change, you may want to verify the currency of this address information using the ASSIST Online database at www.dodssp.daps.mil.

2.3 Non-Government publications. The following document forms a part of this document to the extent specified herein. Unless otherwise specified, the issues are those cited in the solicitation or contract.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM B263 - Standard Specification for Hard-Drawn Copper-Clad Steel Wire.

(Application for copies should be addressed to the American Society for Testing and Materials, 100 Barr Harbor Drive, West Conshohocken, PA 19428-2959 or online at www.astm.org.)

NATIONAL CONFERENCE OF STANDARDS LABS (NCSL)

ANSI NCSL Z540-1 - Calibration Laboratories and Measuring Test Equipment – General Requirements.

(Application for copies should be addressed to the National Conference of Standards Laboratories, 1800 30th Street, Suite 305B, Boulder, CO 80301-1032 or online at www.ncsli.org.)

2.4 Order of precedence. In the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

3. REQUIREMENTS

3.1 Recycled, recovered, or environmentally preferable materials. Recycled, recovered, or environmentally preferable materials should be used to the maximum extent possible provided that the material meets or exceeds the operational and maintenance requirements, and promotes economically advantageous life cycle costs.

3.2 Materials. The material used shall be as specified herein.

3.3 Strand. The strands shall be grade 40 HS, 0.0808 inch nominal diameter in accordance with ASTM B227.

3.4 Construction. The wire shall be constructed of the number and kind of strands as specified in 1.2 and 3.3. The strands shall lay naturally in their true positions and not tend to unstrand at the ends when severed at any point. They shall permit restranding by hand after being forcibly unraveled (unstranded).

3.4.1 Lay. The stranded wire shall be constructed with a left-hand lay.

3.4.2 Pitch.

3.4.2.1 WS-12()/U. The pitch of the 7 strand wire WS-12()/U shall be from 10 to 16 times the nominal wire diameter.

3.4.2.2 WS-13()/U. The pitch of the 3 strand wire WS-13()/U shall be from 14 to 20 times the nominal wire diameter.

3.4.3 Breaking strength.

3.4.3.1 WS-12()/U. The breaking strength of WS-12()/U shall be not less than 4,946 pounds.

3.4.3.2 WS-13()/U. The breaking strength of WS-13()/U shall be not less than 2,236 pounds.

3.4.4 Elongation. The elongation of the stranded wire WS-12()/U and WS-13()/U shall be not less than 1.0 percent.

3.5 Electrical characteristics.

3.5.1 D.C. resistance of strands. The dc resistance when measured on samples taken not more than 25 feet from either end of any length of strand shall correspond to a resistivity not greater than 28.6 ohms per circular mil-foot at 68°F. The resistance when measured on samples taken from the mid-portion of any coil or reel shall correspond to a resistivity not greater than 26.5 ohms per circular mil-foot at 68°F. When temperatures differ from 68°F, corrections shall be based on a temperature coefficient of resistance of 0.0021 per degree Fahrenheit.

3.6 Workmanship. Strands and completed wire shall be manufactured and finished in a careful and workmanlike manner in accordance with good design and sound practice.

4. VERIFICATION

4.1 Classification of inspections. The inspection requirements specified herein are classified as conformance inspection (see 4.3).

4.2 Test equipment and inspection facilities. Test and measuring equipment and inspection facilities of sufficient accuracy, quality, and quantity to permit performance of the required inspections shall be used. The establishment and maintenance of a calibration system to control the accuracy of the measuring and test equipment shall be in accordance with ANSI NCSL Z540-1 or equivalent.

4.3 Conformance inspection. Conformance inspection shall consist of groups A and B inspections as specified in 4.3.5 and 4.3.6 respectively, and shall be performed on every lot of cable procured under this specification. Sampling inspection shall be accomplished for each lot in accordance with 4.3.2.

4.3.1 Lot. A lot shall consist of all cable manufactured under substantially the same conditions and offered for inspection at one time.

4.3.1.1 Lot size. The lot size shall be defined as the number of units of product submitted for inspection.

4.3.1.2 Unit of product. A unit of product shall be defined as the continuous length of cable contained on a single reel, spool, or in a package.

4.3.1.3 Specimen. A specimen is a single piece of finished wire which is taken from a sample unit and subjected to inspection.

4.3.2 Sampling. A random sample shall be selected from each lot in accordance with table II.

MIL-DTL-13241B

TABLE II. Inspection sample.

Inspection lot size ^{1/}	Accept on zero sample size
1	1
2 to 8	2
9 to 90	3
91 to 150	12
151 to 280	19
281 to 500	21
501 to 1,200	27
1,201 to 3,200	36
3,201 to 10,000	38
10,001 to 35,000	46

^{1/} Lot size is based on the number of units of product.

4.3.3 Rejected lot. Failure of any sample to pass any inspection shall constitute a failure of the lot. If an inspection lot is rejected, the contractor may rework the lot to correct the defects or screen out the defective units, and resubmit the lot for re-inspection. Such lots shall be separated from new lots and shall be identified as re-inspected lots (see 4.3.4).

4.3.4 Noncompliance. If a sample fails to pass any inspection, the contractor shall notify the cognizant inspection activity of such failure and take corrective action on the materials or processes or both, as warranted, on all units of product. Acceptance and shipment of the product shall be discontinued until corrective action has been taken. After corrective action has been taken, the conformance inspection shall be repeated on replacement articles. (This includes all tests and examinations, or only the test that the original sample failed, at the option of the cognizant inspection activity.) Final acceptance and shipment shall be withheld until inspection has shown that the corrective action was successful. In the event of failure after re-inspection, information concerning the failure shall be provided to the cognizant inspection activity.

4.3.5 Group A inspection. This inspection, including sampling, shall consist of the examinations of 4.4 to determine compliance with the requirements of 3.2 through 3.4.3.2, as applicable, and 3.6.

4.3.6 Group B inspection. This inspection, including sampling, shall consist of the inspections conforming to 4.5 and 4.6 to determine compliance with 3.4.3, 3.4.4, and 3.5.1 respectively.

4.4 Visual and dimensional inspection. Strands and completed wire shall be inspected to verify that the materials and all workmanship comply with this specification.

4.4.1 Stranding. Specimens shall be inspected for compliance with the requirements of 3.4.

4.4.2 Pitch and lay. Specimens shall be inspected for compliance with the pitch and lay requirements of 3.4.1 through 3.4.2.2.

4.5 Breaking strength and elongation test. Specimens shall be tested for compliance with the requirements of 3.4.3 and 3.4.4 in a tensile testing machine equipped with suitable jaws or sockets. No specimen shall have less than 10 inches of its length between the jaws or sockets. Elongation measurement shall be made on the samples at the same time that the tensile strength test is being performed. In making the elongation measurements, the length, when under a load equal to 10 percent of the required minimum breaking strength, shall be denoted as the zero length of the specimens. The final length shall be the reading when fracture occurs. The finished wire shall be considered to have fractured when one strand breaks. Any test in which the tensile strength or elongation is below the required value and in which fracture occurs within one inch from the gripping jaws or sockets shall be disregarded and another adjacent specimen from the same sample shall be tested as required above.

4.6 DC resistance. Specimens shall be tested for compliance with the dc resistance requirements of 3.5.1.

5. PACKAGING

5.1 Packaging. For acquisition purposes, the packaging requirements shall be as specified in the contract or order (see 6.2). When actual packaging of materiel is to be performed by DoD or in-house contractor personnel, these personnel need to contact the responsible packaging activity to ascertain packaging requirements. Packaging requirements are maintained by the Inventory Control Point's packaging activity within the Military Service or Defense Agency, or within the Military Service's System Commands. Packaging data retrieval is available from the managing Military Department's or Defense Agency automated packaging files, CD-ROM products, or by contacting the responsible packaging activity.

6. NOTES

(This section contains information of a general or explanatory nature that may be helpful, but is not mandatory.)

6.1 Intended use. The wires covered by this specification are intended for use in radio antennas.

6.2 Nomenclature. The parenthesis in the nomenclature will be deleted or replaced by a letter identifying the particular design; for example: WS-12W/U. As soon as possible after the award of contract, the contractor should apply to the Government office specified in the contract for such information.

6.3 Acquisition data. Acquisition documents should specify the following:

- a. Title, number, and date of this specification.
- b. Issue of DoDISS to be cited in the solicitation, and if required, the specific issue of individual documents referenced (see 2.1).
- c. Packaging requirements (see 5.1).
- d. Classification of wire required (see 1.2).
- e. Length of wire required.
- f. Size of spool or reel and length on each.
- h. Coil, spool, and reel marking requirements.

6.4 Subject term (key word) listing.

Copper-clad steel
Radio
Stranded

6.5 Changes from previous issue. Marginal notations are not used in this revision to identify changes with respect to the previous issue due to the extent of the changes.

CONCLUDING MATERIAL

Custodians:
Army – CR
DLA - CC

Preparing activity:
DLA - CC

(Project 6145-A089-000)

NOTES: The activities listed above were interested in this document as of the date of this document. Since organizations and responsibilities can change, you should verify the currency of the information above using the ASSIST Online database at www.dodssp.daps.mil.

STANDARDIZATION DOCUMENT IMPROVEMENT PROPOSAL

INSTRUCTIONS

1. The preparing activity must complete blocks 1, 2, 3, and 8. In block 1, both the document number and revision letter should be given.
2. The submitter of this form must complete blocks 4, 5, 6, and 7, and send to preparing activity.
3. The preparing activity must provide a reply within 30 days from receipt of the form.

NOTE: This form may not be used to request copies of documents, nor to request waivers, or clarification of requirements on current contracts. Comments submitted on this form do not constitute or imply authorization to waive any portion of the referenced document(s) or to amend contractual requirements.

I RECOMMEND A CHANGE:		1. DOCUMENT NUMBER MIL-DTL-13241B	2. DOCUMENT DATE (YYYYMMDD) 20030730
3. DOCUMENT TITLE WIRE, ELECTRICAL; ANTENNA, (WIRE WS-12()/U AND WIRE WS-13()/U)			
4. NATURE OF CHANGE <i>(Identify paragraph number and include proposed rewrite, if possible. Attach extra sheets as needed.)</i>			
5. REASON FOR RECOMMENDATION			
6. SUBMITTER			
a. NAME <i>(Last, First, Middle Initial)</i>		b. ORGANIZATION	
c. ADDRESS <i>(Include zip code)</i>	d. TELEPHONE <i>(Include Area Code)</i> (1) Commercial (2) DSN <i>(if applicable)</i>		7. DATE SUBMITTED (YYYYMMDD)
8. PREPARING ACTIVITY			
a. NAME Defense Logistics Agency Defense Supply Center, Columbus		b. TELEPHONE <i>(Include Area Code)</i> (1) Commercial 614-692-0538 (2) DSN 850-0538	
c. ADDRESS <i>(Include Zip Code)</i> DSCC-VAI P.O. Box 3990 Columbus, Ohio 43216-5000		IF YOU DO NOT RECEIVE A REPLY WITHIN 45 DAYS, CONTACT: Defense Standardization Program Office (DLSC-LM) 8725 John J. Kingman Road, Suite 2533 Fort Belvoir, Virginia 22060-6621 Telephone 703 767-6888 DSN 427-6888	